

IN THE CLAIMS:

Please cancel claim 21, without prejudice or disclaimer. Please amend the claims as indicated below. The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A heat sink comprising:

a first planar member having a first main face and second main face, the second main face having a first depressed portion thereon;

a second planar member having a first main face and a second main face, the first main face having a second depressed portion thereof;

a partition member sandwiched between the second main face of the first planar member and the first main face of the second planar member, and formed with a main first face and a main second face, the partition member having a plurality of holes passing through the first and the second main faces thereof, each of the plurality of holes having a substantially flat wall extending from the first main face of the partition member to the second main face of the partition member,

the first main face of the partition member and the first depressed portion defining a first space having side walls, at least two of the side walls of the first space forming an intersection with rounded corner portions at a location proximate the plurality of holes, wherein the intersection of the side walls of the first space is rounded, the second main face of the partition member and the second depressed portion defining a second space having side walls, at least two

of the side walls of the second space forming an intersection with rounded corner portions at a location proximate the plurality of holes, wherein the intersection of the side walls of the second space is rounded, the holes communicating the first space with the second space with areas in the first space which correspond to the holes being substantially spatially continuous and free of any dividing members;

a supply port for supplying a fluid into the second space;

a discharge port for discharging the fluid from the first space; and

a first guide member provided in the second space for controlling flow of the fluid in the second space from the supply port to an area in the first space corresponding to the holes.

Claim 2 (previously amended): A heat sink according to claim 1, wherein a plurality of the first guide members is provided.

Claim 3 (previously amended): A heat sink according to claim 1, wherein the first guide member has a substantially circular cross section.

Claim 4 (previously amended): A heat sink according to claim 1, wherein the first guide member has a cross section whose length in a first direction from the supply port to the holes is longer than the length in a second direction substantially perpendicular to the first direction, the cross section being shaped like a curve on the supply port side.

Claim 5 (previously amended): A heat sink according to claim 4, wherein the first guide member has a substantially elliptical cross section.

Claim 6 (previously amended): A heat sink according to claim 1, further comprising a second guide member provided in the first space for controlling flow from the areas

corresponding to the holes to the discharge port in the first space.

Claim 7 (previously amended): A heat sink according claim 6, wherein a plurality of the second guide members is provided.

Claim 8 (previously amended): A heat sink according to claim 6, wherein the second guide member has a substantially circular cross section.

Claim 9 (previously amended): A heat sink according to claim 6, wherein the second guide member has a cross section whose length in a third direction from the holes to the discharge port is longer than the length in a fourth direction substantially perpendicular to the third direction, the cross section being shaped like a curve on the hole side.

Claim 10 (previously amended): A heat sink according to claim 9, wherein the second guide member has a substantially elliptical cross section.

Claim 11 (previously amended): A heat sink according to claim 6, wherein said first and second guide members disposed at a part where the first and second spaces overlap each other are located at respective positions overlapping each other.

Claim 12 (previously amended): A heat sink according to claim 1, wherein the first main face of the second planar member has a heating element mounting area for mounting a heating element to be cooled,

the holes being disposed opposing the heating element mounting area.

Claim 13 (cancelled).

Claim 14 (currently amended): A heat sink according to claim 1, wherein ~~said hole~~ each of the holes has a sufficiently small cross section for injecting said fluid into ~~said second~~ the first

space.

Claim 15 (original): A semiconductor laser apparatus comprising:
the heat sink according to claim 1, and
a semiconductor laser mounted on an upper face of said second planar member of said heat sink.

Claim 16 (original): A semiconductor laser apparatus according to claim 15, wherein said semiconductor laser has a plurality of laser emission points arranged in a predetermined direction,

said predetermined direction being oriented so as to become substantially parallel to said upper face of second planar member.

Claim 17 (original): A semiconductor laser stack apparatus comprising first and second heat sinks and first and second semiconductor lasers;

the first and second heat sinks being the heat sink according to claim 1;

the first semiconductor laser being held between an upper face of the second planar member of the first heat sink and a lower face of the first planar member of the second heat sink;

the second semiconductor laser being mounted on said upper face of second planar member of said second heat sink.

Claim 18 (original): A semiconductor laser stack apparatus according to claim 17, wherein the first and second semiconductor lasers have a plurality of laser emission points arranged in a predetermined direction, said predetermined direction being oriented so as to become substantially parallel to said upper faces of first and second planar members.

Claim 19 (original): A semiconductor laser stack apparatus according to claim 17, further comprising:

a supply tube connected to both of said supply port of said first heat sink and said supply port of said second heat sink; and

a discharge tube connected to both of said discharge port of said first heat sink and said discharge port of said second heat sink.

Claim 20 (Currently amended): A heat sink comprising:

an integrally formed first planar member having a first main face and a second main face, the second main face having a first groove portion formed therein which extends only part of the way through the first planar in a direction from the second main face toward the first main face;

an integrally formed second planar member having a first main face and a second main face, the first main face of the second planar member having a second groove portion formed therein which extends only part of the way through the second planar member in a direction from the first main face of the second planar member to the second main face of the second planar member;

a planar partition member having a first main face and a second main face positioned between the second main face of the first planar member and the first main face of the second planar member, the partition member having a hole passing through the first and second main faces of the partition member, wherein the first groove portion of the first planar member and the first main face of the planar partition member form a first space, the second groove portion of the second planar member and the second main face of the planar partition member form a second

space, and the hole in the planar partition member communicates the first space with the second space;

a supply port for supplying a fluid into one of the first and second spaces; and

a discharge port for discharging the fluid from the other of the first and second spaces;

wherein at least one of the first and second spaces is bounded by side walls, at least two of the side walls forming an intersection proximate the hole passing through the first and second main faces of the partition member, the intersection of the side walls being rounded.

Claim 21 (cancelled)